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Determinants of the transition from secondary education to teacher education in Flanders

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In recent years, concerns have risen regarding the Flemish teacher labour market. Indications of a decreasing quality of inflowing teachers combined with high levels of outflow due to early attrition and an ageing teacher population put pressure on this labour market and necessitate policy measures that address these issues. Therefore, a thorough analysis of teacher careers in Flanders is indispensable. This paper will try to fill in part of this gap by considering the characteristics of the inflow of students in the professional teacher education programs, more specifically by investigating determinants of enrolment in teacher education. Newly linked administrative data from the Flemish Department of Education enable us to consider the transition from secondary to higher education of an entire population cohort of students who graduated from secondary education in the academic year 2004-2005. These data allow tracking individual students during their higher education career from the academic year 2005-2006 until 2011-2012. Our findings show that the odds of enrolment in teacher education programs are highly influenced by several individual, secondary school and regional characteristics. While the differences with academic bachelors have been found to be more pronounced when considering most of the determinants, the inflow in teacher education was also found to be substantially different from the inflow in other professional programs.

Keywords: teacher education, teacher careers, higher education, post-secondary transition

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1 Introduction

Mainstream secondary education in Flanders (i.e. the Dutch speaking part of Belgium) is divided into four major education forms: general secondary education, technical secondary education, vocational secondary education and secondary arts education. After finishing general, technical or arts education, students may either continue their educational career to higher education (college or university) or they can enter the labour market. Vocational students are only allowed to higher education after successfully completing an additional year. After having obtained a diploma of secondary education, students have unlimited access to higher education. The aim of this paper is to model the transition from secondary education to different fields of study in higher education conditional on continuing to higher education and to quantify the impact of individual, secondary school and regional characteristics on transition probabilities. The main focus is on the transition to teacher education and on (dis)similarities in transition probabilities between teacher education and other higher education fields of study.

This article fits into the framework of the research of education transitions, which has been expanding since its beginning in the 1980s (Mare 1980). More precisely, this paper can be framed into a more recent wave within this tradition of education transitions, which found its origin in addressing a limitation of the Mare model (Breen and Jonsson 2000; Benito and Alegre 2012). The limitation that is addressed is the implicit assumption that transitions can be considered as yes/no-questions, without taking into account the possibility of parallel branches of study (Mare 1980; Breen and Jonsson 2000; Benito and Alegre 2012). As Breen and Jonsson (2000) and Lucas (2001) argue, considering different parallel branches of study is relevant when investigating education transitions, since opting for different parallel branches might be influenced by different determinants.

This paper considers one sequential transition in particular, namely the transition from secondary to tertiary education. Several studies have defined relevant parallel transition options in this context and have considered a multitude of determinants explaining the choice for a specific transition branch. The definition of these distinct parallel transition options is however very context specific, depending on the educational system considered. For example, in many European countries, the transition to tertiary education involves choosing for a specific subject, while typically in the American education system the transition to undergraduate studies does not immediately require one to do this[1]. In the USA, transition options are therefore

[1] Institute of International Education (2013). "EducationUSA." Retrieved 26 March, 2013, from https://www.educationusa.info/.

differentiated between the length of the undergraduate studies (two or four years) and whether the chosen institution is a public or private one rather than for example the chosen field of study (Ellwood and Kane 2000; Nguyen and Taylor 2003). Furthermore, in many countries, such as Israel and the Netherlands, entrance to higher education is restricted according to e.g. one's outcome on academic ability tests or according to the chosen educational track in secondary education (Ayalon and Yogev 2005; Tieben and Wolbers 2010; Tieben and Wolbers 2010). The transition options in such countries will therefore have to be formulated in a conditional manner. This is a completely different picture than for example the Flemish one, where transition to higher education is only conditional on graduating from secondary education.

Existing literature has examined the influence of a multitude of determinants on the choice of a certain transition option when considering the transition from secondary to higher education. Four main categories of determinants can be distinguished. Firstly, individual characteristics e.g. gender, age and nationality have been found to significantly influence the choice of field of study (Ayalon and Yogev 2005; Benito and Alegre 2012). Secondly, the transition choice is highly influenced by family background characteristics such as type of family, number of siblings, education of the parents and family income (Van de Werfhorst, De Graaf et al. 2001; Nguyen and Taylor 2003; Van de Werfhorst, Sullivan et al. 2003; Ayalon and Yogev 2005). Thirdly, Nguyen and Taylor (2003) and Benito and Alegre (2012) found the impact of certain secondary school characteristics (e.g. percentage of students from families with a low educational level and school type) to have a significant impact on transition choices after secondary education. However, research on the impact of secondary school characteristics on transition options has been scarce so far (Nguyen and Taylor 2003; Benito and Alegre 2012). Finally, regional characteristics such as geographic location have been found to play a part in the transition from secondary to tertiary education (Nguyen and Taylor 2003; Ayalon and Yogev 2005).

In this paper, the transition to different fields of study in Flanders will be considered, conditional on graduating from secondary education and entering higher education. More precisely, we are interested in possible determinants that distinguish the intake of the professional bachelor of teacher education from other fields of study. This is relevant because in recent years, several concerns have risen about a weakening quality of in- and outflow of students in teacher education programs (Matheus, Siongers et al. 2004; Huyge, Siongers et al. 2009). Furthermore, a number of studies have shown the Flemish teacher labour market to be characterised by simultaneous supply shortages and surpluses, depending on for example the

level of education, education form, study field, course and region (Matheus, Siongers et al. 2004; Huyge, Siongers et al. 2009). Furthermore, early attrition and a rapidly ageing teacher population lead to high levels of outflow. These factors might lead to labour market imbalances, which create policy challenges to ensure a sufficient and qualitative supply of teachers. A thorough analysis that goes beyond the traditional descriptive analyses of teacher careers in Flanders is of essential importance in order to create a more global view on these issues. This paper will try to fill in part of this gap by considering the quality of the inflow of students in professional teacher education programs. We will conduct a multinomial logistic model comparing the odds of entering teacher education versus the odds of entering another field of study considering several individual, secondary school and regional characteristics.

This paper starts with a short description of the Flemish educational context in which this article should be framed. Secondly, the data and methodology for the empirical analysis will be described. Subsequently, the results of the multinomial logistic model will be reported. We conclude with a discussion of the implications and limitations of this study.

2 The Flemish education system[2]

Our analysis focuses on a population cohort of Flemish students who graduated from secondary education in 2004-2005 and consequently enrolled as students in higher education in the period 2005-2012. One of most important principles of the Flemish education system is its freedom of education. Everyone has the right to organise and establish institutions for education. Furthermore, the authorities have the obligation to provide neutral education. The governing bodies play a major role in this, enjoying considerable autonomy while having to meet the attainment targets in order to obtain government recognition. These governing bodies of primary and secondary education are associated in three educational networks, which take over some of the responsibilities and autonomy of the governing bodies. The three educational networks are:

- *GO! Education of the Flemish Community*, which is publicly run education organised under the authority of the Flemish Community. The *GO! Education* is required to be neutral: All religious, philosophical and ideological convictions of parents and pupils have to be respected.

[2] This entire section is based on Department of Education and Training (2008). Education in Flanders. A broad view of the Flemish educational landscape. Brussels, Department of Education and Training**:** 68.

- *Publicly funded, publicly run education (OGO)*, which comprises municipal education as well as provincial education.
- *Publicly funded, privately run education (VGO)*, which delivers education organised by a private organisation. This educational network mainly consists of catholic schools.

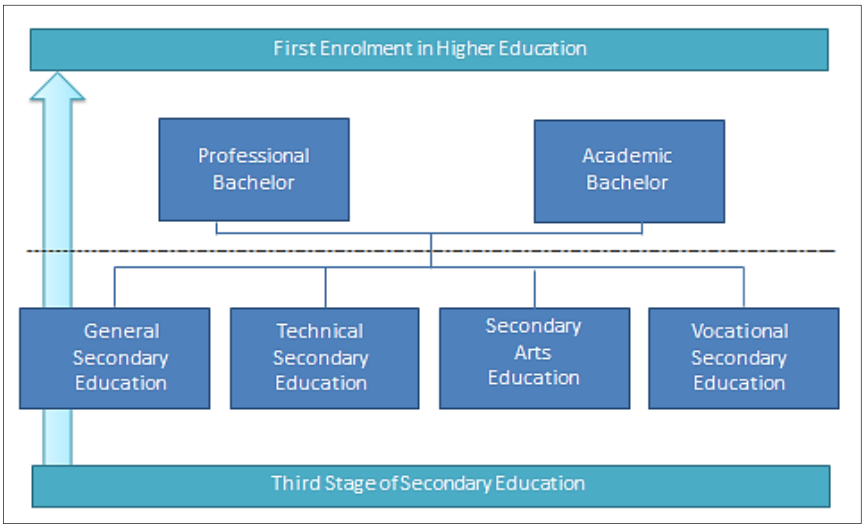
The principle of the freedom of education not only comprises the freedom of organisation, it also comprises the parents' freedom of choice: A school within the choice of the parents and children must be located within a reasonable distance from their home.

As can be observed from Figure 1, four different education forms can be distinguished when considering the third stage (i.e. the last two or three years) of Flemish mainstream secondary education[3]:

- *General secondary education*, which places an emphasis on broad general education. This form of education provides a firm foundation for passing on to tertiary education.
- *Technical secondary education*, which places a special emphasis on general and technical/theoretical subjects. After this form of education, students can exercise a profession or pass on to tertiary education.
- *Secondary arts education*, which combines a broad general education with active arts practice. After this form of education, students can exercise a profession or go on to tertiary education.
- *Vocational secondary education*, which is a practice oriented type of education where students learn a specific occupation in addition to receiving general education. In Belgium, education is compulsory until the age of 18. However, from the age of 15 onwards, students following *vocational secondary education* can opt for part-time education.

[3] These definitions are taken from Department of Education and Training (2008). Education in Flanders. A broad view of the Flemish educational landscape. Brussels, Department of Education and Training: 68.

Figure 1. Transition from secondary to higher education in Flanders



General education accommodates the largest share of secondary school students: in 2006-2007 approximately 40% was enrolled in general education, 31% in technical education and 27% in vocational education. Finally, arts education accounted for approximately 2% of the students. A pupil gains the diploma of secondary education after successfully completing six years of general, technical or arts education, or seven years of vocational (full-time) education.

When a young person decides to enrol in higher education after secondary education, he or she can opt for professional or academic bachelor courses. The professional bachelors are organised at colleges of higher education, while the academic bachelors are provided by both colleges of higher education and universities[4]. The access to higher education is unlimited[5] for holders of a diploma of secondary education: Any student can opt for any subject in higher education. The entire higher education system is publicly funded in Flanders, and registration fees are equal for all bachelor programmes.

[4]As from the academic year 2013-2014 onwards, these academic bachelors will only be organized by universities.

[5] With the exception of medicine and dentistry. These are the only subjects where students have to pass for an admission test before they are allowed to register.

3 Data & Methodology

3.1 Data

In this paper we compare students who decide to enrol in teacher education with those who decide to enrol in another field of study in higher education after graduating from secondary education. The analysis is based on newly linked administrative data provided by the Flemish Department of Education, which enables us to consider the transition from secondary to higher education of a population cohort of students who graduated from secondary education in the academic year 2004-2005. This dataset includes information on both student characteristics (e.g. gender, nationality, year of birth, grade retention), detailed individual enrolment information in secondary and higher education, as well as a number of school and regional characteristics.

Data on 51,902 pupils who graduated from secondary education in 2004-2005 were linked to data of higher education from the period 2005-2012. 39,369 of these 51,902 graduates in 2004-2005 enrolled for the first time in higher education in one of these subsequent years. Out of these 39,369 students those were selected who, (1) were younger than 25 years and (2) were enrolled in a program that enabled them to obtain a bachelor's degree[6] and (3) who did not drop out of the program in their first year of higher education. This resulted in a dataset consisting of 31,296 students.

3.2 Methodology

3.2.1 Multinomial logistic model

A frequently used method to cope with transition options is the use of multinomial logistic models as it was done for example by Benito & Alegre (2012). This method allows us to compare the enrolment of students in multiple study fields since it is able to deal with a non-ordered categorical dependent variable that contains more than two outcomes. This model enables us to determine which effect different individual, school and region-related determinants have on the choice of the field of study.

[6] In Flemish higher education the possibility exists to enrol in higher education with a 'contract of credits' or 'a contract of exams' which do not allow students to obtain a degree.

3.2.2 Dependent variable

Since our aim is to find determinants that have an effect on the decision to enrol in the professional bachelor in teacher education compared to the enrolment in other fields of study, we divide the possible study subjects into 7 different fields of study. This division is based on a frequently made division by Flemish colleges and universities and are the following:

- *Professional bachelor (PBA) Teacher Education:* This field of study includes the professional teacher education programmes for nursery, primary and secondary education.
- *Professional bachelor (PBA) Humanities and Social Sciences:* This field of study includes professional bachelor programmes in the field of e.g. management, languages, psychology, social work and communication.
- *Professional bachelor (PBA) Science, Engineering and Technology:* This field of study includes professional bachelor programmes related to technology and architecture.
- *Professional bachelor (PBA) Biomedical Sciences:* This field of study includes professional programmes such as nursing, audiology and obstetrics.
- *Academic bachelor (ABA) Humanities and Social Sciences:* This field of study includes academic bachelor programmes in the fields of e.g. psychology, economics, law, sociology, literature and arts.
- *Academic bachelor (ABA) Science, Engineering and Technology:* This field of study includes academic bachelor programmes for exact and engineering sciences.
- *Academic bachelor (ABA) Biomedical Sciences:* This field of study includes academic bachelor programmes in the field of e.g. medicine, dentistry, kinesiology, veterinary, biomedical and pharmaceutical sciences.

In the analysis *PBA Teacher Education* will be used as reference category for the independent variable, since this allows comparing the inflow of teacher education programs with all other fields of study.

3.2.3 Independent variables

In the analysis individual, school and regional indicators will be considered as possible determinants for the choice of field of study in higher education. The individual characteristics include gender, nationality, type of educational form in secondary education, grade retention and year of enrolment in higher education. Age was not included because of its high correlation with grade retention and year of enrolment in higher education. These variables are on the level of the student. Secondly, school characteristics are included in the analysis. These are variables linked to the pupil by the identification number of its institution of secondary education. These

variables include the composition of educational forms in the secondary school, as well as the percentage of pupils in the school with at least one year of grade retention. In addition, the educational network to which the school belongs is considered. These variables are believed to be proxies for the social mix of the institution. Finally, regional indicators are considered. As no information was provided on the residence of the pupils, the location of the secondary institution was used as a proxy for residence, and regional variables were thus linked to each pupil. These variables include the level of unemployment in 2005[7] and the Dexia typology, a regional classification-variable used to organise Belgian municipalities into homogeneous socioeconomic clusters. These regional indicators were included in order to capture regional differences in economic strength and performance of local labour markets, which may influence the choice of higher education study field. More information on some of these variables that require clarification can be found in Table 1. An overview of the descriptive statistics of the independent variables is provided by Table 2. For the continuous variables, averages were calculated. For the categorical variables, column percentages were provided.

Table 1. Independent variables.

Type of variable		Description
Individual Characteristics		
Grade Retention	Continuous	This variable indicates the number of years a student is held back in secondary education. Value zero goes for students who are never held back and do not have grade advancement. Years of grade advancement take negative values.
Late Enrolment Higher Education	Continuous	This variable goes from 0 to 7 and indicates the years gone by between graduating from secondary education and first enrolment in higher education.
Secondary School Characteristics		
OKAN classes	Continuous	Percentage of pupils in OKAN classes. These are classes to integrate young foreigners in the Flemish education system and teach them Dutch.
Grade Retention	Continuous	Percentage of pupils with at least one year of grade retention based on the pupils of the second and third stage.
Regional Characteristics		
Dexia Classification	Categorical	The Dexia-typology classifies municipalities and cities into a number of categories, based on their socio-economic profile (Matheus, Siongers et al. 2004).

[7] These data were provided by the 'Vlaamse Arbeidsrekening'. (www.steunpuntwse.be, retrieved on 28 February 2013)

Table 2. Descriptive statistics

		PBA Teacher Education (n = 3,505)	PBA Humanities and Social Sciences (n = 6,977)	PBA Science, Engineering and Technology (n = 2,773)	PBA Biomedical Sciences (n = 1,937)	ABA Humanities and Social Sciences (n = 10,228)	ABA Science, Engineering and Technology (n = 3,542)	ABA Biomedical Sciences (n = 2,324)	Total (n = 31,296)
Individual Characteristics									
Gender **(%)**	Boys	28.2	41.0	78.8	12.8	41.6	73.9	35.9	44.7 (n = 13,995)
	Girls	71.8	59.0	21.2	87.2	58.4	26.1	64.1	55.3 (n = 17,301)
Nationality **(%)**									
	Moroccan	0.1	0.5	0.1	0.2	0.3	0.1	0.2	0.3 (n = 82)
	Other	0.3	0.9	0.4	0.9	1.0	0.8	0.7	0.8 (n = 246)
	Dutch	0.2	0.5	0.3	0.4	0.6	0.5	0.5	0.5 (n = 147)
	Belgian	99.3	98.1	99.2	98.6	98.1	98.6	98.6	98.5 (n = 30,821)
Educational Form **(%)**									
	Technical Secondary Educ.	50.7	51.5	69.4	52.1	6.3	15.2	4.6	30.7 (n = 9599)
	Secondary Arts Educ.	2.1	1.2	5.6	0.6	3.6	0.8	0.1	2.3 (n = 720)
	Vocational Sec. Educ.	7.9	5.4	4.2	4.8	0.8	0.1	0.1	3.0 (n = 950)
	General Sec. Educ.	39.3	41.9	20.8	42.5	89.4	83.8	95.1	64.0 (n = 20027)
Grade Retention **(average)**		0.43	0.50	0.34	0.43	0.19	0.10	0.07	0.30 (n = 31,296)
Late Enrolment Higher Educ. **(average)**		0.10	0.09	0.21	0.10	0.05	0.02	0.02	0.07 (n = 31,296)
Secondary School Characteristics									
% of pupils **(average):**									
	General Secondary Educ.	33.35	34.88	17.29	34.32	60.98	57.40	65.12	46.44 (n = 31,296)
	Technical Secondary Educ.	29.01	28.72	35.25	27.26	9.16	12.53	8.20	19.49 (n =31,296)
	Secondary Arts Educ.	1.77	1.33	3.41	1.23	2.84	0.66	0.32	1.90 (n = 31,296)
	Full-Time Vocational Sec. Educ.	17.74	16.71	24.42	18.66	5.83	7.85	4.29	12.15 (n = 31,296)
	Part-Time Vocational Sec. Educ.	0.62	0.48	2.03	0.34	0.24	0.53	0.11	0.53 (n = 31,296)
	OKAN classes	0.15	0.19	0.17	0.15	0.16	0.08	0.13	0.15 (n = 31,296)
Grade Retention **(average)**		7.53	7.74	8.95	6.94	4.19	3.72	3.09	5.81 (n = 31,296)
Educational Network **(%)**									
	GO! Education	17.4	14.3	9.0	13.1	14.5	12.0	12.0	13.8 (n = 4,306)
	OGO	5.5	5.6	11.3	3.6	3.4	3.7	3.2	4.8 (n = 1,517)
	VGO	77.0	80.0	79.7	83.4	82.1	84.3	84.9	81.4 (n = 25,473)
Regional Characteristics									
Unemployment level **(average)**		8.99	9.28	8.99	9.30	9.76	9.27	9.73	9.41 (n = 30,329)
Dexia Classification **(%)**									
	Central Municipality	63.6	63.3	62.2	62.9	62.0	58.7	61.9	62.2 (n = 19,453)
	Concentration Econ. Activ.	8.6	8.1	10.5	8.2	7.1	8.0	6.9	7.9 (n = 2,483)
	Rural Municipality	7.9	8.0	4.9	9.2	5.2	8.3	7.2	6.8 (n = 2,143)
	Semi-Urban Municipality	8.4	8.4	9.0	7.9	7.1	8.7	6.3	7.9 (n = 2,462)
	Strongly Urbanized Municipality	1.0	1.3	1.3	1.2	2.8	1.8	2.6	1.9 (n = 593)
	Tourist Municipality	0.5	0.9	0.6	0.4	0.7	0.6	0.5	0.7 (n = 216)
	Residential Municipality	10.1	10.0	11.4	10.3	15.1	14.0	14.5	12.6 (n = 3,946)

4 Results

The results of the multinomial logit model can be found in Table 3. For every field of study the effect of each determinant and its exponent are depicted. The reference category of this analysis is PBA Teacher Education, as the main purpose of this study is to compare the enrolment profiles of the students of PBA Teacher Education with those of other fields of study. We will discuss the results in three parts. First, we consider the effects of the individual characteristics. Secondly, we discuss the effects of the secondary school characteristics. Thirdly, we inspect the effects of the regional characteristics on the choice of field of study.

4.1 *Individual characteristics*

4.1.1 *Gender*

When comparing the gender effect on the choice of study, the feminine character of the teacher profession can immediately be detected. Women are more likely to opt for PBA Teacher Education compared to all other fields of study with the exception of the field of study PBA Biomedical Sciences. The gender contrast between PBA Teacher Education and other fields of study is the most pronounced when considering technology-related subjects. These results are completely in line with the gender stereotypes of certain professions: Engineering and technology-related professions are typically perceived as masculine, while nurses and teachers are more often looked at as feminine.

4.1.2 *Nationality*

Enrolment of other nationalities in teacher education programs is very limited. The odds of enrolment for non-Belgian students are higher for all fields of study compared to teacher education with the exception of PBA Science, Engineering & Technology. While significant differences with the professional programs can be concluded, the difference between the teacher education programs and academic bachelors are more pronounced. In general we can state that Moroccan, Dutch and other nationalities are more likely to opt for other fields of study when making the transition from secondary to tertiary education.

4.1.3 *Educational form*

The choice for a certain field of study in higher education seems to be highly determined by the pathway chosen in secondary education. While no significant differences were found between PBA Teacher Education and other professional programs considering the likelihood of enrolment when having chosen technical secondary education, the differences with enrolment in academic programs are very pronounced: The odds of enrolment in an academic program compared to enrolment in teacher education decrease with 87.5 to 94.7% when having frequented technical secondary education compared to general secondary education. Students who went to secondary arts education are more likely to choose for PBA Teacher Education than for other fields of study, with the exception of PBA Science, Engineering and Technology. Art students are more likely to opt for PBA Sciences & Technology compared to teacher education, which is logical since subjects as architecture, interior design and audio-visual techniques are included in this field of study. The most remarkable result is the effect of vocational secondary education on the choice of field of study in higher education: The odds of enrolment decrease with 41.5 to 98.2% compared to teacher education programs according to the field of study when having frequented vocational secondary education rather than general secondary education. Again, these effects are more pronounced for academic programs than for professional programs. While vocational secondary education is not directed towards higher education, the odds of inflow of students from this educational form in PBA Teacher Education are particularly high compared to other fields of study. This can partly be explained by the fact that one third of the inflowing students from vocational secondary education in PBA Teacher Education had as subject in secondary education 'Child Care', which makes the transition to a teacher education program a logical one.

4.1.4 *Grade Retention*

When considering the effect of grade retention on the choice of field of study, we can conclude that students with higher grade retention are slightly more likely to opt for PBA Humanities & Social Sciences compared to PBA Teacher Education. No differences with other professional fields of study could be determined. However, the differences with academic programs are again more pronounced: Students with higher levels of grade retention are less likely to enroll in academic bachelor programs compared to teacher education.

4.1.5 *Late Enrolment in Higher Education*

The inclusion of the retardation of enrolment in higher education was found to improve the model significantly. The moment of first registration in higher education is significantly different for different fields of study. While the likelihood of retardation of enrolment is lower for study fields PBA Humanities and Social Sciences and ABA Science, Engineering and Technology when compared to PBA Teacher Education, the opposite is true for PBA Biomedical Sciences. The reasons for these outcomes are however unclear.

4.2 ***Secondary School characteristics***

4.2.1 *School composition of educational forms*

In this section we consider the results of the school characteristics that are related to the school composition of the educational forms. We consider the percentage of pupils in general, technical, (full and part-time) vocational and arts education and the percentage of pupils in OKAN classes. While all school composition related variables included were shown to significantly improve the model using likelihood ratio tests, the estimated effects of these variables remain small whenever found to be significant. Descriptive statistics (Table 2) showed very clearly the differences in school composition between fields of study and especially between professional and academic programs. Students who have chosen for academic programs were found to come from schools that have a substantially higher proportion of pupils in general education and a lower proportion of pupils in technical and vocational education when compared to the professional programs. These results were not confirmed in the multivariate analysis when controlling for individual and regional characteristics. Students from (PBA and ABA) Science, Engineering and Technology were found to be more likely to come from schools with a lower proportion of pupils frequenting general secondary education. The effect of proportion of pupils in technical education is negative in all cases, however not always significant. Students from PBA Biomedical Sciences were found to be more likely to come from schools with a higher proportion of arts students, yet this effect is very small. A higher proportion of pupils in full-time vocational education seems to significantly increase the likelihood of enrolment in (both PBA and ABA) Science, Engineering and Technology and PBA Biomedical Sciences, while decreasing the likelihood of enrolment in ABA Biomedical Sciences when compared to PBA Teacher Education. The likelihood of enrolment in PBA Humanities and Social Sciences decreases when the proportion of pupils in part-time vocational education increases, while the likelihood of enrolment in (both PBA and ABA) Science, Engineering and Technology increases. The likelihood of enrolment in ABA Humanities and Social Sciences and in ABA Biomedical Sciences seems to increase when the proportion of

pupils in OKAN classes increases. We would like to point to the fact that the effects of these school composition variables are small compared to the effects of the individual characteristics, even when found to be significant.

4.2.2 *Proportion of Pupils with Grade Retention*

The proportion of pupils with grade retention was found to have an influence on choice of field of study in higher education. The likelihood of enrolment in PBA Humanities and Social Sciences is higher compared to enrolment in Teacher Education when students come from schools with a higher proportion of pupils with grade retention. A higher proportion of grade retention leads to a reduced likelihood of enrolment in both PBA and ABA Science, Engineering and Technology.

4.2.3 *Educational Networks*

The likelihood of enrolment in PBA Teacher Education is higher compared to all other fields of study when a student frequented a school belonging to the publicly run *Go! Education* organized by the Flemish community. This goes together with the effect of the reference category *VGO*: Enrolment in teacher education is less likely when a student frequented a privately organized school. The likelihood of enrolment in PBA Teacher Education is higher when having frequented the *OGO* educational network when compared to PBA Humanities and Social Sciences and PBA Biomedical Sciences. Students from the *OGO*-network seem to have a higher likelihood of enrolling in PBA Science, Engineering and Technology when compared to teacher education.

4.3 ***Regional characteristics***

4.3.1 *Unemployment*

The unemployment level was found to have a significant influence on the probabilities of enrolment in different fields of study. Higher levels of unemployment increase the likelihood of enrolment in PBA Biomedical Sciences and all academic fields of study compared to teacher education, ceteris paribus. These programs might be perceived as leading to better job opportunities.

Table 3. Multinomial logit model: Transition options in Higher Education – Comparison with PBA Teacher Education

	PBA Humanities and Social Sciences		PBA Science, Engineering and Technology		PBA Biomedical Sciences		ABA Humanities and Social Sciences		ABA Science, Engineering and Technology		ABA Biomedical Sciences	
	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)
Intercept	0.438**		-0.799***		-0.491**		1.687***		-0.072		0.206	
Individual Characteristics												
Gender (Girls = ref.)												
Boys	0.576***	1.779	2.173***	8.784	-0.978***	0.376	0.929***	2.533	2.319***	10.165	0.730***	2.074
Nationality (Belgian = ref.)												
Moroccan	1.211*	3.355	-1.231	0.292	-0.224	0.800	1.566**	4.787	0.444	1.559	1.739*	5.693
Other	1.045**	2.843	0.627	1.873	1.162**	3.197	1.715***	5.557	2.291***	9.886	1.760***	5.881
Dutch	0.757	2.132	0.477	1.611	0.431	1.539	1.104**	3.016	1.234**	3.435	1.022*	2.779
Educ. Form (General = ref.)												
Technical Sec. Educ.	-0.114	0.892	-0.061	0.940	0.008	1.008	-2.857***	0.057	-2.080***	0.125	-2.939***	0.053
Sec. Arts Educ.	-0.872**	0.418	1.399***	4.051	-2.427***	0.088	-0.542*	0.582	-0.728*	0.483	-2.868***	0.057
Vocational Sec. Educ.	-0.536***	0.585	-0.901***	0.406	-0.857***	0.425	-2.982***	0.051	-3.999***	0.018	-3.708***	0.025
Grade Retention	0.082*	1.086	-0.016	0.985	-0.049	0.952	-0.174***	0.840	-0.713***	0.490	-0.636***	0.529
Late Enrolment Higher Educ.	-0.092*	0.912	-0.091	0.913	0.289***	1.335	0.036	1.036	-0.337***	0.714	-0.191	0.826
Secondary School Charact.												
% of pupils:												
General Sec. Educ.	0.001	1.001	-0.012***	0.988	-0.001	0.999	-0.001	0.999	-0.003*	0.997	-0.001	0.999
Technical Sec. Educ.	-0.002	0.998	-0.005*	0.995	-0.005*	0.995	-0.008***	0.992	-0.008***	0.992	-0.005	0.995
Secondary Arts Educ.	0.002	1.002	-0.003	0.997	0.014*	1.014	0.002	1.002	-0.007	0.993	-0.012	0.988
Full-Time Vocational Sec. Educ.	-0.003	0.997	0.014***	1.014	0.011***	1.011	0.000	1.000	0.009***	1.009	-0.008*	0.992
Part-Time Vocational Sec. Educ.	-0.029***	0.971	0.034***	1.035	-0.017	0.984	0.010	1.010	0.033***	1.034	-0.004	0.996
OKAN classes	0.000	1.000	-0.002	0.998	0.007	1.007	0.055**	1.056	0.013	1.014	0.064**	1.066
Grade Retention	0.019***	1.019	-0.021***	0.980	-0.010	0.990	0.009	1.009	-0.021**	0.975	0.000	1.000
Educ. Network (VGO = ref.)												
GO! Education	-0.430***	0.650	-0.698***	0.498	-0.341***	0.711	-0.547***	0.579	-0.486***	0.615	-0.569***	0.566
OGO	-0.267**	0.766	0.279*	1.322	-0.446**	0.640	-0.130	0.879	0.159	1.173	0.225	1.252

NOTE: Reference category is PBA Teacher Education *: $p < 0.05$ **: $p < 0.01$ ***: $p < 0.001$

Table 3. Continued - Multinomial logit model: Transition options in Higher Education – Comparison with PBA Teacher Education

	PBA Humanities and Social Sciences		PBA Science, Engineering and Technology		PBA Biomedical Sciences		ABA Humanities and Social Science		ABA Science, Engineering and Technology		ABA Biomedical Sciences	
	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)	Coef.	exp(β)
Regional Characteristics												
Unemployment level	0.016	1.017	0.017	1.017	0.050***	1.052	0.063***	1.065	0.062***	1.064	0.081***	1.084
Dexia Class. (Resid. Mun. = ref.)												
Central Municip.	-0.017	0.983	-0.392***	0.675	-0.241*	0.786	-0.481***	0.618	-0.435***	0.647	-0.454***	0.635
Concentration Econ. Activ.	0.013	1.013	-0.190	0.827	-0.223	0.800	-0.295**	0.744	-0.315**	0.730	-0.274*	0.760
Rural Municip.	0.054	1.055	-0.666***	0.514	-0.087	0.917	-0.682***	0.506	-0.240	0.786	-0.374**	0.688
Semi-Urban Municip.	0.001	1.001	-0.293*	0.746	-0.307*	0.736	-0.692***	0.501	-0.461***	0.631	-0.823***	0.439
Strongly Urbanized Municip.	-0.217	0.805	-0.047	0.955	-0.669	0.512	-0.728**	0.483	-0.707*	0.493	-0.780*	0.459
Tourist Municip.	0.582*	1.790	-0.109	0.897	-0.757	0.469	-0.306	0.736	-0.487	0.614	-0.817*	0.442
Model Fitting Information												
Chi-square	16738.538											
Df	150											
Sig.	<0.001											
Pseudo R-Square												
Cox and Snell	0.424											
Nagelkerke	0.437											
McFadden	0.156											

NOTE: Reference category is PBA Teacher Education *: $p < 0.05$ **: $p < 0.01$ ***: $p < 0.001$

4.3.2 *Dexia Typology*

The socioeconomic activity of the municipality of the secondary school was found to have a significant influence on the enrolment probabilities in different fields of study. Most of the significant effects of the socioeconomic type of the municipality are negative, indicating that the enrolment probabilities for these fields of study decrease compared to PBA Teacher Education when having frequented a secondary school in a municipality of the according socioeconomic type. We can state that the odds of enrolment in academic fields of study are highest when living in residential municipalities (reference category) since nearly all the effects of the other categories are significantly negative. The differences with the professional study fields are less explicit. The only positive significant effect found was as increased enrolment probability in PBA Humanities and Social Sciences when having frequented a school in a tourist municipality. The explanation for this can be found in the fact that this field of study includes subjects such as hotel and tourism management.

5 Discussion

In this paper we investigated the influence of individual, secondary school and regional characteristics on the probability of enrolment in teacher education programs compared to other fields of study when considering the transition from secondary to higher education. The main drawback of this study is that no information was available on family background such as education and occupation of the parents and family income. Several studies, such as Davies and Guppy (1997), Ayalon and Yogev (2005) and Benito and Alegre (2012) have shown family background variables to have an important influence on the choice of field of study. These family background variables are correlated with variables such as nationality, education form and grade retention and the estimated effects of these variables probably capture to a certain extent the effects of the omitted variables of family background. The Department of Education started collecting data on family background variables for secondary education as of 2008-2009. In the near future, we will be able to extend this analysis with the inclusion of family background variables.

Our findings show that the enrolment probability in teacher education programs is highly influenced by several individual, secondary school and regional characteristics. While the differences with academic bachelors have been found to be more pronounced when considering most of the determinants, the inflow in teacher education was also found to be substantially different from the inflow in other professional programs.

The odds of enrolment in teacher education programs were found to be higher for girls and lower for non-Belgian students. Students from vocational secondary education are more likely to enrol in teacher education programs than in any other field of study. When considering grade retention, we see that weaker students have a higher probability to enrol in teacher education when compared to academic programs, but that the differences with professional programs are limited. Secondary school characteristics have been found to significantly influence the enrolment in different fields of study. Students with exactly the same individual characteristics might make other transition choices when having frequented very dissimilar secondary schools. A possible explanation for the significance of these school characteristics is the presence of peer group effects: It is plausible that different peer-group compositions lead to different educational outcomes and choices, as suggested by for example Gibbons and Telhaj (2006). While school composition effects were found to be significant, they are small in magnitude. Belonging to Go! Education seems to significantly increase the likelihood of enrolment in teacher education. The reasons for this influence of educational networks are however unclear and demand further research. Finally, regional characteristics have been found to influence the enrolment in different fields of study. It is remarkable to which extent the socioeconomic type of the municipality of secondary school was found to be of significant importance on the choice of field of study. This paper can be considered as an initiation of a debate concerning the quality and profiles of students who enrol in different fields of study in Flanders as well as a starting point of an extensive analysis of teacher careers in Flanders.

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